Fact Sheet

Public Comment Start Date: August 14, 2006
Public Comment Expiration Date: September 13, 2006
Technical Contact: Kai Shum
(206) 553-0060
800-424-4372, ext. 0060 (within Alaska, Idaho, Oregon and Washington)
shum.kai@epa.gov

Proposed Reissuance of a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA)

Makah Tribal Council
Makah Waste Water Treatment Plant
2250 Cape Flattery Road
Neah Bay, WA 98357

And

The State of Washington Proposes to Certify the Permit

EPA Proposes To Reissue NPDES Permit
EPA proposes to Reissue the NPDES permit for the facility referenced above. The draft permit places conditions on the discharge of pollutants from the wastewater treatment plant to waters of the United States. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility.

This Fact Sheet includes:
- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations and other conditions for the facility
- a map and description of the discharge location
- technical material supporting the conditions in the permit

401 Certification
EPA is requesting that the Washington State Department of Ecology to certify the NPDES permit for this facility, under Section 401 of the Clean Water Act.

Public Comment
Persons wishing to comment on, or request a Public Hearing for the draft permit for this facility may do so in writing by the expiration date of the Public Comment period. A request for a Public Hearing must state the nature of the issues to be raised as well as the requester's name,

address and telephone number. All comments and requests for Public Hearings must be in writing and should be submitted to EPA as described in the Public Comments Section of the attached Public Notice.

After the Public Notice expires, and all comments have been considered, EPA's regional Director for the Office of Water and Watersheds will make a final decision regarding permit issuance. If no substantive comments are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If substantive comments are received, EPA will address the comments and issue the permit. The permit will become effective no less than 30 days after the issuance date, unless an appeal is submitted to the Environmental Appeals Board within 30 days.

Documents are Available for Review

The draft NPDES permit and related documents can be reviewed or obtained by visiting or contacting EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday at the address below. The draft permits, fact sheet, and other information can also be found by visiting the Region 10 NPDES website at "http://epa.gov/r10earth/waterpermits.htm."

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, OWW-130
Seattle, Washington 98101
(206) 553-0523 or
Toll Free 1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permit are also available at:

Makah Waste Water Treatment Plant
Makah Nation
Attention: Robert Davisson
2250 Cape Flattery Road
Neah Bay, WA 98357
(360) 645-2474

Acronyms

1Q10	1 day, 10 year low flow
7Q10	7 day, 10 year low flow
30B3	Biologically-based design flow intended to ensure an excursion frequency of less than once every three years, for a 30-day average flow.
ACR	Acute-to-Chronic Ratio
AML	Average Monthly Limit
ASR	Alternative State Requirement
AWL	Average Weekly Limit
BA	Biological Assessment
BAT	Best Available Technology economically achievable
BCT	Best Conventional pollutant control Technology
BE	Biological Evaluation
BO or BiOp	Biological Opinion
BOD_5	Biochemical oxygen demand, five-day
BOD_u	Biochemical oxygen demand, ultimate
BMP	Best Management Practices
BPT	Best Practicable
^oC	Degrees Celsius
CBOD	Carbonaceous Biochemical Oxygen Demand
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
COD	Chemical Oxygen Demand
CSO	Combined Sewer Overflow
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement

EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FDF	Fundamentally Different Factor
FR	Federal Register
Gpd	Gallons per day
HUC	Hydrologic Unit Code
IC	Inhibition Concentration
I/I	Infiltration and Inflow
LA	Load Allocation
lbs/day	Pounds per day
LC	Lethal Concentration
LC_{50}	Concentration at which 50% of test organisms die in a specified time period
LD_{50}	Dose at which 50% of test organisms die in a specified time period
LOEC	Lowest Observed Effect Concentration
LTA	Long Term Average
LTCP	Long Term Control Plan
mg/L	Milligrams per liter
ml	Milliliters
ML	Minimum Level
ug/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit
MF	Membrane Filtration
MLLW	Mean Lower Low Water
MPN	Most Probable Number
MR	Makah Reservation
MWWTP	Makah Waste Water Treatment Plant
N	Nitrogen
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NOEC	No Observable Effect Concentration
NOI	Notice of Intent

NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
OWW	Office of Water and Watersheds
O&M	Operations and maintenance
PCS	Permit Compliance System
POTW	Publicly owned treatment works
PSES	Pretreatment Standards for Existing Sources
PSNS	Pretreatment Standards for New Sources
QAP	Quality assurance plan
RP	Reasonable Potential
RPM	Reasonable Potential Multiplier
RWC	Receiving Water Concentration
SIC	Standard Industrial Classification
SPCC	Spill Prevention and Control and Countermeasure
SS	Suspended Solids
SSO	Sanitary Sewer Overflow
s.u.	Standard Units
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TRC	Total Residual Chlorine
TRE	Toxicity Reduction Evaluation
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
TU_a	Toxic Units, Acute
TU_c	Toxic Units, Chronic
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UV	Ultraviolet
WET	Whole Effluent Toxicity
WLA	Wasteload allocation

WQBEL	Water quality-based effluent limit
WQS	Water Quality Standards
WWTP	Wastewater treatment plant

I. Applicant

A. General Information

This fact sheet provides information on the draft NPDES permit for the following entity:

Makah Waste Water Treatment Plant

NPDES Permit # WA-002321-3

Physical Address:
2250 Cape Flattery Road
Neah Bay, WA 98357

Mailing Address:
P.O. Box 115
Neah Bay, WA 98357

Contact:
Mr. Robert Davisson
Lead Operator II
Makah Waste Water Treatment Plant
(360) 645-2474

II. Facility Information

The facility is located in the Makah Reservation (MR) on the Olympic Peninsula of Washington State. The Makah Waste Water Treatment Plant (MWWTP) was constructed in 1997, and is owned and operated by the Makah Tribe. The point of discharge is an outfall into the marine waters of the Straits of Juan de Fuca, approximately 3580 feet from shore, into coastal waters of Washington State. According to Robert Davisson who is the MWWTP operator and an employee of the Makah Tribe, the boundary of the Makah Reservation ends at the Mean Lower Low Water (MLLW) level. As defined by National Oceanic and Atmospheric Administration, MLLW is the mean of the lower of the two daily low waters over a period of time (preferably 19 years).

The MWWTP has primary and secondary treatment, and handles only sanitary wastes, serving approximately 1700 residents and several small businesses. The MWWTP does not accept industrial waste waters. The plant was constructed in 1997, replacing an older WWTP that is no longer used. This NPDES permit concerns the 1997 plant; it has a design flow rate of 0.41 million gallons per day (mgd), and the average daily flow rate reported on the permit application is 0.21 mgd . The NPDES Permit Identification number for this permit is retained from the previous permit for the former WWTP. The previous NPDES Permit was issued by U.S. EPA, and was effective from February 26, 1979, and expired had on February 26, 1984.

The operator has reported on the Permit Application that the annual average daily flow rate in 2004 and 2005 are 0.20 mgd and 0.23 mgd respectively. In addition, the reported maximum daily flow rate in 2004 and 2005 are reported as 0.35 mgd and 0.66 mgd respectively. The average daily flow rate at the outfall is reported on the Permit Application as 0.21 mgd. The average daily contribution from Inflow and Infiltration (I/I) is estimated in the Permit Application to be 50,000 gpd. According to the operator (Robert Davisson), it is expected that there are wide variations of I/I rates during the year; higher I/I rates in winter is expected due to higher precipitation during winter months. Effluent is discharged through one outfall into the Strait of Juan de Fuca, approximately 3580 feet from shore at a depth of approximately 45 feet below the surface. The location of the marine outfall in the Strait of Juan de Fuca is approximately halfway between Koitlah Point and Waadah Island.

The Permit Application indicated that the outfall is equipped with a diffuser. Construction drawings (dated 8/8/95) that were provided by the facility indicate that the diffuser is 120 feet long, had 4 ports, where each port is 6 inches in diameter, and spaced 40 feet between ports. The construction drawings also showed that the diffuser pipe is 14 inches above the sea floor, and at a depth of 45 feet (MLLW level).

In the Permit Application, the facility reported the outfall location as: 48^{o} 22’ 59” N and 124^{o} 36’ 10” W. However, based on a map provided by the facility, EPA believes that the reported latitude and longitude in the Permit Application is imprecise. The revised probable location map of the outfall is shown in Appendix B. The revised coordinates of the outfall are: 48^{o} 22’ 58.2” N, and 124^{o} 37’ 10.5” W.

The MWWTP consists of a total of four compounds where primary and secondary treatment takes place in two settling ponds and two aeration lagoons. After primary and secondary treatment, the waste water passes through the Chlorine Contact Chamber before discharge at the marine outfall at the Strait of Juan de Fuca. In the Permit Application, the facility stated that it uses liquid chlorine injection for disinfection, and does not utilize dechlorination or post aeration processes prior to effluent discharge at the outfall.

In the Makah NPDES Permit Application, the facility reported the following effluent testing data in Table 1 below:

Table 1: Facility Reported Effluent Data

Pollutant	Maximum Daily Discharge	Average Daily Discharge
Ammonia (as N)	13.4 mg/l	12.8 mg/l
Chlorine (Total Residual)	0.42 mg/l	0.02 mg/l
Dissolved Oxygen	11.2 mg/l	6.2 mg/l
Total Kjeldahl Nitrogen (TKN)	12.7 mg/l	12.6 mg/l
Nitrate Plus Nitrite Nitrogen	1.12 mg/l	1.07 mg/l
Oil and Grease	3.6 mg/l	3.6 mg/l
Total Dissolved Solids (TDS)	166 mg/l	159 mg/l

In the previous permit, the following effluent discharge limitations were required:

a. The monthly average quantity of effluent discharged for the wastewater treatment facility shall not exceed 0.27 mgd.
b. The pH shall not be less than 6.0 nor greater than 9.0.
c. There shall be no discharge of floating solids or visible foam other than in trace amounts.
d. The following effluent limitations in Table 2 below:

Table 2: Effluent Limitations in the Previous Permit

Effluent Characteristics	Unit of Measurement	Monthly Average	Weekly Average
BOD5 (w/85% removal)	**mg/l**	**30**	**45**
BOD5 Loading	lb/day	68	101
TSS (w/85% removal)	**mg/l**	**75**	**113**
TSS Loading	lb/day	169	254
Fecal Coliform Bacteria	**number/100 ml**	**200**	**400**

e. The following monitoring requirements in Table 3 below:

Table 3: Monitoring Requirements in the Previous Permit

	Unit of Measurement	Sampling Frequency	Type of Sample
Effluent:			
Total Flow	mgd	Weekly	Calculated
BOD5	mg/l	Monthly	Grab
TSS	mg/l	Monthly	Grab
Fecal Coliform Bacteria	number/100 ml	Monthly	Grab
pH	pH Units	Weekly	Grab
Chlorine Residual	mg/l	5/week	Grab
Settleable Solids	mg/l	Weekly	Grab
Operation and Maintenance:			
Dissolved Oxygen (Lagoon Cell)	mg/l	Weekly	Grab
Temperature (Lagoon Cell)	degrees F	Weekly	Grab

Concerning compliance with the previous NPDES Permit, EPA records indicate that the facility had submitted Discharge Monitoring Reports (DMRs) irregularly with 45 missing monthly reports (from November 2000 to June 2006). The proposed permit would require the MWWTP to submit DMRs to EPA and the Washington Department of Ecology on a monthly frequency.

III. Receiving Water

This facility discharges into the marine waters of the Strait of Juan de Fuca, off the coast of Washington State. According to the construction diagrams, the location of the submerged outfall is 3580 feet from shore, and approximately 45 feet below surface (below Mean Lower Low Water (MLLW)).

A. Water Quality Standards

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards by July 1, 1977. Federal regulations at 40 CFR 122.4(d) require that the conditions in NPDES permits ensure compliance with the water quality standards of all affected States. A State's water quality standards are composed of use classifications, numeric and/or narrative water quality criteria, and an anti-

degradation policy. The use classification system designates the beneficial uses (such as drinking water supply, contact recreation, and aquatic life) that each water body is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary by the State to support the beneficial use classification of each water body. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses.

For the purposes of this permit, EPA is using the State of Washington's water quality standards found at WAC 173-201A. The applicable criteria in the proposed permit were approved by EPA in 1998, and therefore incorporated to set effluent limits in the proposed permit. However, if more current standards are approved before this permit is finalized, they will be incorporated into the permit.

The applicable criteria are determined based on the class designation of the receiving waterbody, in this case is the Strait of Juan de Fuca. In WAC 173-201A-140(24), there is a specific classification for the Strait of Juan de Fuca; this waterbody is classified as Class AA (extraordinary) marine water. Characteristic uses for Class AA marine waters include industrial water supply; salmonid and other fish migration, rearing, spawning and harvesting; clam, oyster, and mussel and other shellfish rearing, spawning, and harvesting; wildlife habitat; recreation (primary contact recreation, sport fishing, boating, and aesthetic enjoyment); and commerce and navigation.

In addition to the Class AA designation for water quality standards, discussion with Mahbub Alam from Washington State Department of Ecology also indicates that this water body is considered "estuarine" for purposes of determining the size of a mixing zone. This position is supported by Washington State regulations, WAC 173-201A-100(7)(b)(ii), which states that: "All waters existing within bays from Point Wilson westward to Cape Flattery …… shall also be categorized as estuarine." The outfall of the MWWTP is located in Neah Bay, which is between Point Wilson and Cape Flattery; therefore the receiving water is considered "estuarine".

Pertaining to the estuarine designation, in WAC 173-201A-100(7)(b)(i), the mixing zone is determined by adding 200 feet to the depth of water over the discharge port as measured during MLLW. Since construction diagrams obtained from the facility indicate that the MLLW level at the discharge port is 45 feet, it is determined that the size of the mixing zone is 245 feet (Chronic criteria). Pertaining to WAC 173-201A-100(8)(b), for the acute criteria, the size of the mixing zone is 10%, which calculates to 24.5 feet. EPA used these site specific parameters to determine dilution ratios, and reasonable potential calculations as shown in the appendices.

IV. Effluent Limitations

A. Basis for Effluent Limitations

In general, the CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a water body are being met and may be more stringent

than technology-based effluent limits. In this case, the appropriate Water Quality Standard for comparison is the State of Washington water quality standards, approved by EPA in 1998, and can be found at WAC 173-201A. The basis for the effluent limits proposed in the draft permit is provided in Appendix C.

B. Proposed Effluent Limitations

Below are the proposed effluent limits that are in the draft permit.

1. Removal Requirements for BOD_5 and TSS: The monthly average effluent concentration must not exceed 15 percent of the monthly average influent concentration. Percent removal of BOD_5 and TSS must be reported on the Discharge Monitoring Reports (DMRs). For each parameter, the monthly average percent removal must be calculated from the arithmetic mean of the influent values and the arithmetic mean of the effluent values for that month. Influent and effluent samples must be taken over approximately the same time period.

Table 4 (below) presents the proposed average monthly, average weekly, and maximum daily effluent limits.

Table 4: Proposed Effluent Limits for Outfall 001

Parameter	Units	Effluent Limits		
		Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit
Five-Day Biochemical Oxygen Demand (BOD_5)	mg/l	30	45	--
	lb/day	102.6	153.9	--
	% removal	85% (min)	—	—
Total Suspended Solids (TSS)	mg/l	30	45	--
	lb/day	102.6	153.9	--
	% removal	85% (min)	—	—
Fecal Coliform Bacteria	#/100 ml	200[1]	400[1]	--
pH	s.u.	Within the range of 6.0 – 9.0		
Total Residual Chlorine	mg/l	0.5	0.75	--
	lb/day	1.71	2.56	--

1. The permittee must report the geometric mean fecal coliform concentration. If any value used to calculate the geometric mean is less than 1, the permittee must round that value up to 1 for purposes of calculating the geometric mean.

V. Monitoring Requirements

A. Basis for Influent and Effluent Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality.

The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs) or on the application for renewal, as appropriate, to the U.S. Environmental Protection Agency (EPA).

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits.

Table 5 below illustrates the proposed influent and effluent monitoring requirements for the MWWTP. The sampling location for effluent must be after the last treatment unit and prior to discharge to the receiving water. The monitoring samples must not be influenced by combination with other effluent. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

Table 5: Proposed Effluent Monitoring Requirements

Parameter	Units	Sample Location	Sample Frequency	Sample Type
Flow	mgd	Effluent	Continuous	Recording
BOD_5	mg/l	Influent & Effluent	1/week	24-hour composite
	Lb/day	Influent & Effluent	1/week	calculation[1]
	% Removal	--	--	calculation[2]
TSS	mg/l	Influent & Effluent	1/week	24-hour composite
	Lb/day	Influent & Effluent	1/week	calculation[1]
	% Removal	--	--	calculation[2]
pH	standard units	Effluent	5/week	Grab
Fecal Coliform	#/100 ml	Effluent	2/week	Grab
Total Residual Chlorine	mg/l	Effluent	5/week	Grab
	Lb/day	Effluent		calculation[1]
Total Ammonia as N	mg/l	Effluent	1/quarter	24-hour composite
Alkalinity as $CaCO_3$	mg/l	Effluent	1/quarter	Grab
Temperature	Degrees C	Effluent	5/week	Grab

Notes:
1. Loading is calculated by multiplying the concentration in mg/l by the flow in mgd and a conversion factor of 8.34. If the concentration is measured in µg/l, the conversion factor is 0.00834.
2. Percent removal is calculated using the following equation:
(average monthly influent – average monthly effluent) ÷ average monthly influent.

B. Possibility of Future Inflow and Infiltration Investigation

In the Permit Application, the facility had reported significantly high Inflow and Infiltration (I/I) rates of 50,000 gpd. Since the reported average daily flow rate at the outfall is 0.21 mgd, I/I rates may constitute a significant percentage of flow. During this permit cycle, EPA will review compliance and in the event that the facility is unable to meet effluent limits, EPA may decide in the future to require an I/I Investigation and remedy.

VI. Sludge (Biosolids) Requirements

EPA Region 10 separates wastewater and sludge permitting. EPA has authority under the CWA to issue separate sludge-only permits for the purposes of regulating biosolids. EPA may issue a sludge-only permit to each facility at a later date, as appropriate.

Until future issuance of a sludge-only permit, sludge management and disposal activities at each facility continue to be subject to the national sewage sludge standards at 40 CFR Part 503 and any requirements of the State's biosolids program. The Part 503 regulations are self-implementing, which means that facilities must comply with them whether or not a permit has been issued.

VII. Other Permit Conditions

A. Quality Assurance Plan

The federal regulation at 40 CFR 122.41(e) requires the permittee to develop procedures to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. The Makah Tribal Council is required to update the Quality Assurance Plan for the MWWTP within 90 days of the effective date of the final permit. The Quality Assurance Plan shall consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting.

B. Operation and Maintenance Plan

The permit requires the Makah Tribal Council to properly operate and maintain all facilities and systems of treatment and control. Proper operation and maintenance is essential to meeting discharge limits, monitoring requirements, and all other permit requirements at all times. The Makah Tribal Council is required to develop and implement an operation and maintenance plan for their facility within 90 days of the effective date of the final permit. The plan shall be retained on site and made available to EPA and the Washington State Department of Ecology upon request.

C. Pretreatment Requirements

The Makah waste water treatment plant does not process any waste water generated from industrial sources. As such, EPA does not believe it is necessary for the Makah waste water treatment plant to develop a pretreatment program for EPA's approval.

D. Design Criteria

The permit retains the design criteria requirements from the previous permit. This provision requires the permittee to compare influent flow and loading to the facility's design flow and loading and prepare a facility plan for maintaining compliance with NPDES permit effluent limits when the annual average flow or loading exceeds 85% of the design criteria values for three consecutive months.

E. Standard Permit Provisions

Sections II, III, and IV of the draft permit contain standard regulatory language that must be included in all NPDES permits. Because these requirements are based directly on NPDES regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

VIII. Other Legal Requirements

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) and the U.S. Fish and Wildlife Service (FWS) if their actions could beneficially or adversely affect any threatened or endangered species. EPA has determined that issuance of this permit is not likely to adversely affect any threatened or endangered species in the vicinity of the discharge. On May 22, 2006, EPA wrote to NOAA and FWS to inquire about Endangered Species in the area of Neah Bay. On June 12, 2006, EPA received an e-mail response from Matthew Longenbaugh of NOAA which stated that there were three marine mammals that were either endangered or threatened: (1) Southern Resident Killer Whale (Endangered); (2) Humpback Whale (Endangered); and (3) the Steller Sea Lion (Threatened). In addition, NOAA's response also included information that the Southern Resident Killer Whale has now been proposed to be designated Critical Habitat. Due to the relatively small volume of discharge from this POTW that has no industrial users, the requirement to treat to secondary treatment standards, and the combination of a high dilution ratio, EPA does not expect the discharge to likely have an adverse impact to endangered and threatened species in the area, nor will the discharge likely to adversely modify the critical habitat of the Southern Resident Killer Whale.

B. Essential Fish Habitat

Essential fish habitat (EFH) includes the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions

In an e-mail dated June 12, 2006, NOAA Fisheries identified that this area is a critical habitat of the Southern Resident Killer Whale. Due to the nature of this effluent in this environment, EPA has determined that issuance of this permit is not likely to adversely affect EFH in the vicinity of the discharge.

C. State Certification

Section 401 of the CWA requires EPA to seek State certification before issuing a final permit. As a result of the certification, the State may require more stringent permit conditions or additional monitoring requirements to ensure that the permit complies with water quality standards, or treatment standards established pursuant to any State law or regulation. On August 2, 2006, Washington Department of Ecology (Ecology) indicated to EPA that Ecology has reviewed the draft Permit and draft Fact Sheet and concurs with the terms and conditions. Ecology will provide certification that the permit meets Washington Water Quality Standards prior to final issuance.

D. Permit Expiration

The permit will expire five years from the effective date.

IX. References

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control.* US Environmental Protection Agency, Office of Water, EPA/505/2-90-001.

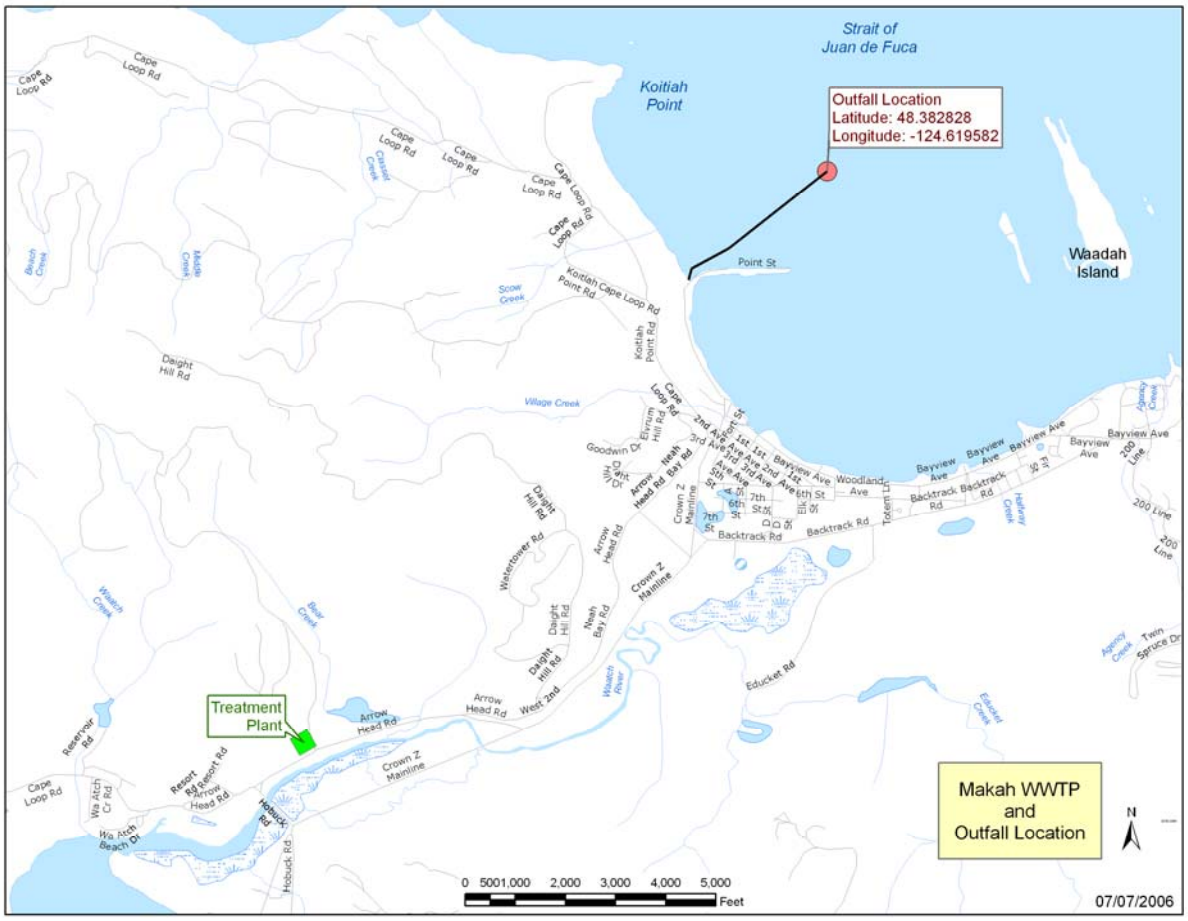
Appendix A: Facility Information

General Information	
NPDES ID Number:	WA-002321-3
Physical Address:	2250 Cape Flattery Road, Neah Bay, WA 98357
Mailing Address:	P.O. Box 115, Neah Bay, WA 98357
Facility Background:	Waste Water Treatment Plant located on the Makah Reservation.
Facility Information	
Type of Facility:	Waste Water Treatment Plant
Treatment Train:	Secondary Treatment
Flow:	Designed Flow Rate: 0.41 mgd
Probable Outfall Location:	Latitude 48° 22' 58.2" N; Longitude 124° 37' 10.5" W
Receiving Water Information	
Receiving Water:	Strait of Juan de Fuca

Appendix B: Facility Map

Based on diagrams and maps provided by the facility, EPA created this map to show the locations of the Makah Waste Water Treatment Plant and the probable location of the submerged marine outfall. The coordinates of the marine outfall are:

48° 22' 58.2" N, and 124° 37' 10.5" W



Appendix C: Basis for Effluent Limits

The following discussion explains in more detail the statutory and regulatory basis for the technology and water quality-based effluent limits in the draft permit. Part A discusses technology-based effluent limits, Part B discusses water quality-based effluent limits in general, and Part C discusses facility specific water quality-based effluent limits.

A. Technology-Based Effluent Limits

Federal Secondary Treatment Effluent Limits

The CWA requires POTWs to meet requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level, referred to as "secondary treatment," which all POTWs were required to meet by July 1, 1977. EPA has developed and promulgated "secondary treatment" effluent limitations, which are found in 40 CFR 133.102. These technology-based effluent limits apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by application of secondary treatment in terms of BOD_5, TSS, and pH. The federally promulgated secondary treatment effluent limits are listed in Table C-1.

Table C-1: Secondary Treatment Effluent Limits
(40 CFR 133.102)

Parameter	Average Monthly Limit	Average Weekly Limit	Range
BOD_5	30 mg/L	45 mg/L	---
TSS	30 mg/L	45 mg/L	---
Removal Rates for BOD_5 and TSS	85% (minimum)	---	---
pH	---	---	6.0 – 9.0 s.u.

Chlorine

Chlorine is often used to disinfect municipal wastewater prior to discharge. The MWWTP uses chlorine disinfection.

A 0.5 mg/L average monthly limit for chlorine is derived from standard operating practices. The Water Pollution Control Federation's *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/L chlorine residual is maintained after 15 minutes of contact time. Therefore, a wastewater treatment plant that provides adequate chlorine contact time can meet a 0.5 mg/L total residual chlorine limit on a monthly average basis. In addition to average monthly limits (AMLs), NPDES regulations require effluent limits for POTWs to be expressed as average weekly limits (AWLs) unless impracticable. The AWL is calculated to be 1.5 times the AML, consistent with the "secondary treatment" limits for BOD_5 and TSS. This results in an AWL for chlorine of 0.75 mg/L.

Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for

POTWs be calculated based on the design flow of the facility. The mass based limits of the proposed NPDES Permit are expressed in pounds per day and are calculated as follows:

Mass based limit (lb/day) = concentration limit (mg/l) × design flow (mgd) × 8.34[1]

Mass based limits for BOD5 and TSS (lb/day), AML = 30 x 0.41 x 8.34 = 102.58

Mass based limits for BOD5 and TSS (lb/day), AWL = 45 x 0.41 x 8.34 = 153.87

Mass based limits for chlorine (lb/day), AML = 0.5 x 0.41 x 8.34 = 1.71

Mass based limits for chlorine (lb/day), AWL = 0.75 x 0.41 x 8.34 = 2.56

B. Water Quality-based Effluent Limits

Statutory and Regulatory Basis

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards by July 1, 1977. Discharges to State or Tribal waters must also comply with limitations imposed by the State or Tribe as part of its certification of NPDES permits under section 401 of the CWA. Federal regulations at 40 CFR 122.4(d) prohibit the issuance of an NPDES permit that does not ensure compliance with the water quality standards of all affected States. The NPDES regulation (40 CFR 122.44(d)(1)) implementing Section 301(b)(1)(C) of the CWA requires that permits include limits for all pollutants or parameters which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State or Tribal water quality standard, including narrative criteria for water quality.

The regulations require the permitting authority to make this evaluation using procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation.

Reasonable Potential Analysis

When evaluating the effluent to determine if water quality-based effluent limits are needed, based on numeric criteria, EPA projects the receiving water concentration (downstream of where the effluent enters the receiving water) for each pollutant of concern. EPA uses the concentration of the pollutant in the effluent and receiving water and, if appropriate, the dilution available from the receiving water, to project the receiving water concentration. If the projected concentration of the pollutant in the receiving water exceeds the numeric criterion for that specific chemical, then the discharge has the reasonable potential to cause or contribute to an exceedance of the applicable water quality standard, and a water quality-based effluent limit is required.

Sometimes it is appropriate to allow a small area of the receiving water to provide dilution of the effluent. These areas are called mixing zones. Mixing zone allowances will increase the mass loadings of the pollutant to the water body and will decrease treatment requirements. Mixing zones can be used only when there is adequate receiving water flow volume and when the

[1] 8.34 is a conversion factor with units (lb ×L)/(mg × gallon×10^6)

receiving water meets the criteria necessary to protect the designated uses of the water body. Mixing zones must be authorized by Washington State Department of Ecology. Based on the previous permit and the draft certification, the water quality-based effluent limits in this permit have been calculated using a mixing zone. If the Washington State Department of Ecology does not grant a mixing zone, the water quality-based effluent limits will be recalculated such that the criteria are met before the effluent is discharged to the receiving water.

Procedure for Deriving Water Quality-based Effluent Limits

The first step in developing a water quality-based effluent limit is to develop a wasteload allocation (WLA) for the pollutant. A wasteload allocation is the concentration or loading of a pollutant that the permittee may discharge without causing or contributing to an exceedance of water quality standards in the receiving water.

In cases where a mixing zone is not authorized, either because the receiving water already exceeds the criterion, the receiving water flow is too low to provide dilution, or the State does not authorize one, the criterion becomes the WLA. Establishing the criterion as the wasteload allocation ensures that the permittee will not cause or contribute to an exceedance of the criterion. The following discussion details the specific water quality-based effluent limits in the draft permit with the expectation that Ecology would certify the final permit.

C. Facility-Specific Water Quality-based Limits

pH

The Washington water quality criterion for Class AA marine water specifies a pH range of 7.0 to 8.5 standard units, with human-caused variation within the above range of less than 0.2 units (WAC 173-201A-030(1)(c)(v)). In the previous permit, the technology based limit allowed the range of pH from 6.0 to 9.0; in the permit application, the facility reported its Maximum Daily Value for pH as 6.4 (minimum) and 9.2 (maximum). Since EPA does not expect the relatively small volume of effluent to change the pH of marine waters in the Strait of Juan de Fuca with very large dilution (1676:1 dilution), and the previous permit limit was 6.0 to 9.0; therefore, the draft permit requires that the effluent have a pH of no less than 6.0 and no greater than 9.0 standard units. In addition, analyses also show that the technology based limit is protective of Washington's Water Quality Standards, and the effluent would not change background pH levels of the receiving water.

Table C2: Calculation of pH of a mixture in seawater.	
Based on the CO2SYS program (Lewis and Wallace, 1998)	
http://cdiac.esd.ornl.gov/oceans/co2rprt.html	
INPUT	
1. MIXING ZONE BOUNDARY CHARACTERISTICS	
Dilution factor at mixing zone boundary	1676.000
Depth at plume trapping level (m)	13.700
2. BACKGROUND RECEIVING WATER CHARACTERISTICS	
Temperature (deg C):	9.75
pH:	**7.90**
Salinity (psu):	30.20
Total alkalinity (mmol/L)	2.12
3. EFFLUENT CHARACTERISTICS	
Temperature (deg C):	23.40
pH:	9.20
Salinity (psu)	0.00
Total alkalinity (mmol/L):	3.00
	calculate
4. CLICK THE 'calculate" BUTTON TO UPDATE OUTPUT RESULTS >>>	
OUTPUT	
CONDITIONS AT THE MIXING ZONE BOUNDARY	
Temperature (deg C):	9.76
Salinity (psu)	30.18
Density (kg/m^3)	1023.29
Alkalinity (mmol/kg-SW):	2.08
Total Inorganic Carbon (mmol/kg-SW):	1.97
pH at Mixing Zone Boundary:	**7.90**

http://www.ecy.wa.gov/programs/eap/pwspread/pwspread.xls

Alkalinity

Alkalinity is a parameter used for modeling pH of the receiving water (see Table C2). The alkalinity value used in Table C2 is obtained from default values. Quarterly monitoring of alkalinity is proposed in the draft permit to build sufficient site-specific data for more precise modeling purposes in the next permit cycle.

Ammonia

In WAC 173-201A-040(3), the Washington state water quality criteria for marine waters require that ammonia be less than 0.233 mg/l as a 1-hour average concentration for acute criteria, not to be exceeded more than once every three years on the average; ammonia is further limited to no more than 0.035 mg/l as a 4-day average concentration for chronic criteria, not to be exceeded more than once every three years on average. The facility stated in its permit application that it had data on a total of 3 effluent samples, with the maximum daily discharge of 13.4 mg/l, and average daily discharge of 12.8 mg/l. The waste water treatment plant operator indicated via telephone that the 3 samples were collected over 3 consecutive days. Based on the small sample size, the high dilution rates as provided by the Visual Plumes model, and modeling calculations as provided below, EPA believes it is not necessary to propose effluent limits for ammonia under the present circumstances. However, EPA believes that the facility should monitor ammonia on a quarterly basis to generate sufficient data for the evaluation in the next permit cycle.

Reasonable Potential calculations indicate that for the three available sets of data reported by the facility in its permit application, that there would be a reasonable potential at the 99% Confidence Level and 99% Probability Basis. However for sample sizes greater or equal to 5, that there would not be reasonable potential at the 99% Confidence Level and 99% Probability Basis. As a reference, EPA also ran the simulation for the 95% Confidence Level and 95% Probability Basis scenario using the same data, since Washington State uses the 95% assumption for Ecology permits, and the results indicate that there would not be reasonable potential to exceed Washington's WAC 173-201A-040 standards for marine waters (Acute criteria: 233 ug/l; Chronic criteria 35 ug/l). Analyses of these calculations indicate that at the moment, there are too few samples collected to conclude that ammonia from the WWTP is of unacceptable levels.

Temperature

In WAC 173-201A-030(1)(C)(iv), the Washington water quality criteria limit the ambient water temperature to 13.0 degrees C for marine water; when natural conditions exceed 13.0 degrees C, no temperature increases will be allowed which will raise the receiving water temperature by greater than 0.3 degrees C. The ambient temperature of water in the Juan de Fuca is highest at the surface of approximately 10 degrees C, and is less than 1 degree cooler at depths below 100 m. Since the ambient temperature of water is significantly cooler than Washington's water quality criteria for temperature, and due to the vast amount of water in the Strait of Juan de Fuca compared to the relative small volume of effluent (average daily flow rate of 0.21 mgd at the outfall, and high dilution ratios), no significant increase in temperature of the receiving water body is expected from outfall effluent; therefore, no temperature limits have been proposed in the draft permit. Temperature as a parameter is proposed to be monitored in the draft permit for

comparison with past effluent, for monitoring plant operations, and to obtain data for future effluent modeling purposes.

Fecal Coliform

In WAC 173-201A-030(1)(c)(i)(B), the Washington water quality criteria for Class AA marine water requires that the fecal coliform levels shall both not exceed a geometric mean of 14 colonies/100ml and not have more than 10 percent of all samples obtained for calculating the geometric mean value exceeding 43 colonies/100ml. These criteria are to be met at the edges of the mixing zones. The facility reported in its Permit Application that its effluent had a maximum daily discharge for fecal coliform of 220 colonies/100ml, and its average daily discharge is <35 colonies/100ml. EPA's Visual Plumes model show that the dilution ratio for the Acute mixing zone is 427:1, and the dilution ratio for the Chronic mixing zone is 1676:1. Due to the high dilution rates, EPA believes that the effluent limitations in the previous permit are protective and therefore should be retained: 200 count/100 ml for monthly average, and 400 count/100ml for weekly average.

Chlorine (Total Residual)

In WAC 173-201A-040(3), the Washington water quality criteria for marine water limit total residual chlorine at 13 ug/l as a 1-hour average concentration for acute criteria, not to be exceeded more than once every three years on the average; it is further limited to 7.5 ug/l as a 4-day average concentration for chronic criteria, not to be exceeded more than once every three years on an average. The Washington water quality criteria has to be met at the edge of the mixing zone. The facility reported in its Permit Application that effluent testing showed that its maximum daily discharge for chlorine is 0.42 mg/l (420 ug/l) and its average daily discharge is 0.02 mg/l (20 ug/l). According to Robert Davisson, the MWWTP Operator, these values were averaged from 3 years of sampling, which calculates to approximately 1095 samples. Reasonable potential calculations show that there is no reasonable potential for chlorine criteria to be exceeded, therefore no water quality based limits are proposed.

However, as discussed in the previous section, the Water Pollution Control Federation's *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if 0.5 mg/l chlorine residual is maintained after 15 minutes of contact time. Therefore, a wastewater treatment plant that provides adequate chlorine contact time can meet a 0.5 mg/l total residual chlorine limit on a monthly average basis. In addition to average monthly limits (AMLs), NPDES regulations require effluent limits for POTWs to be expressed as average weekly limits (AWLs) unless impracticable. The AWL is calculated to be 1.5 times the AML, consistent with the "secondary treatment" limits for BOD_5 and TSS. This results in an AWL for chlorine of 0.75 mg/l.

Table C3: Reasonable Potential Calculation

	State Water Quality Standard		Max concentration at edge of...												
	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone	**LIMIT REQUIRED?**	Effluent percentile value		Max effluent concentration measured (metals as total recoverable)	Coefficient of Variation		# of samples	Multiplier	Acute Dilution Factor	Chronic Dilution Factor	COMMENTS
Parameter	*ug/L*	*ug/L*	*ug/L*	*ug/L*			*Pn*	*ug/L*	*CV*	*s*	*n*				
Chlorine	13.0	7.5	5.72	1.46	**NO**	0.99	0.996	2900.00	0.60	0.55	1095	0.84	427	1676	1095 samples 99th %ile RP
Total Ammonia as NH3-N	233.0	35.0	176.57	44.94	**YES**	0.99	0.215	13400.00	0.60	0.55	3	5.62	427	1676	3 samples -99th %ile RP
Total Ammonia as NH3-N	233.0	35.0	131.65	33.51	**NO**	0.99	0.398	13400.00	0.60	0.55	5	4.19	427	1676	5 samples - 99th %ile RP
Total Ammonia as NH3-N	233.0	35.0	119.92	30.52	**NO**	0.99	0.464	13400.00	0.60	0.55	6	3.82	427	1676	6 samples - 99th %ile RP
Total Ammonia as NH3-N	233.0	35.0	121.04	30.81	**NO**	0.99	0.215	13400.00	0.60	0.55	3	3.85	427	1676	3 samples - 95th %ile RP

Spreadsheet based on Washington Ecology calculation program found in: http://www.ecy.wa.gov/programs/eap/pwspread/tsdcalc11.xls

Appendix D: Reasonable Potential Calculations

EPA uses the process described in the *Technical Support Document for Water Quality-based Toxics Control* (EPA, 1991) to determine reasonable potential.

To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, EPA compares the maximum projected receiving water concentration to the criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a water quality-based effluent limit must be included in the permit. This section discusses how the maximum projected receiving water concentration is determined.

A. Visual Plumes Modeling

In consideration that the MWWTP has a marine outfall, EPA modeled the dilution at the edge of the acute and chronic mixing zones using site-specific conditions. The following dilution ratios were determined from the model:

Dilution at the Acute Mixing Zone: 426 : 1

Dilution at the Chronic Mixing Zone: 1676 : 1

The output from the Visual Plumes model is illustrated in the table below. The dilution ratios are high-lighted and bolded for ease of recognition:

Table D1: Output from Visual Plumes Model for the Makah WWTP

```
/ Windows UM3. 7/13/2006 4:50:16 PM
Case 1; ambient file F:\KSHUM\Makah.plumes.001.db; Diffuser table record 1: ---------------------------------
      Depth    Amb-cur    Amb-dir    Amb-sal    Amb-tem    Amb-pol      Decay    Far-spd    Far-dir    Disprsn
          m        m/s        deg        psu          C      kg/kg        s-1        m/s        deg   m0.67/s2
        0.0        0.1        0.0       30.2       9.75        0.0        0.0        0.1        0.0    0.00003
        8.0        0.1        0.0       30.2        9.6        0.0        0.0        0.1        0.0    0.00003
       18.0        0.1        0.0       30.3        9.6        0.0        0.0        0.1        0.0    0.00003
       40.0        0.1        0.0      30.35        9.6        0.0        0.0        0.1        0.0    0.00003
   P-dia  P-elev V-angle H-angle   Ports Spacing AcuteMZ ChrncMZ P-depth Ttl-flo Eff-sal    Temp Polutnt
    (in)    (in)   (deg)   (deg)      ()    (ft)    (ft)    (ft)    (ft)   (MGD)   (psu)     (C) (kg/kg)
     6.0    30.0     0.0   38.22     4.0    40.0    24.5   245.0    42.5    0.41     0.0    24.3   100.0
Froude number:      1.246
        Depth  Amb-cur    P-dia  Polutnt   Dilutn   x-posn   y-posn
Step     (ft)   (cm/s)     (in)  (kg/kg)       ()     (ft)     (ft)
   0      42.5     10.0      6.0    100.0      1.0      0.0      0.0;
 100     41.79     10.0    15.55    20.88    4.693    1.053    0.504;
 200     38.75     10.0    47.59    2.882    33.84    4.322    0.842;
 300     31.57     10.0    140.0    0.398    245.0    16.55    1.025; axial vel  0.0102
 328     28.23     10.0    187.5    0.228    426.6    24.52    1.061; acute zone,
 397     15.51     10.0    380.6   0.0583   1672.6    70.34    1.136; surface, merging,
Plumes not merged, Brooks method may be overly conservative.
Const Eddy Diffusivity.  Farfield dispersion based on wastefield width of      38.40 m
    conc  dilutn   width distnce    time
 (kg/kg)            (m)     (m)    (hrs) (kg/kg)   (s-1)  (cm/s)(m0.67/s2)
 5.80E-2  1680.4   38.45    25.0 0.00988     0.0     0.0    10.0 3.00E-5
 5.81E-2  1677.4   38.75    50.0  0.0793     0.0     0.0    10.0 3.00E-5
 5.82E-2  1676.0   39.05    75.0   0.149     0.0     0.0    10.0 3.00E-5 Chronic Zone
count: 3
 ;
4:50:16 PM. amb fills: 2
```

Table D2: Reasonable Potential Analysis for Ammonia and Chlorine

	State Water Quality Standard		Max concentration at edge of...												
	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone	**LIMIT REQUIRED?**	Effluent percentile value		Max effluent conc. measured (metals as total recoverable)	Co-efficient of Variation		# of samples	Multiplier	Acute Dilution Factor	Chronic Dilution Factor	COMMENTS
Parameter	*ug/L*	*ug/L*	*ug/L*	*ug/L*			*Pn*	*ug/L*	*CV*	*s*	*n*				
Chlorine	13.0	7.5	5.72	1.46	**NO**	0.99	0.996	2900.00	0.60	0.55	1095	0.84	427	1676	1095 samples 99th %ile RP
Total Ammonia as NH3-N	233.0	35.0	176.57	44.94	**YES**	0.99	0.215	13400.00	0.60	0.55	3	5.62	427	1676	3 samples 99th %ile RP
Total Ammonia as NH3-N	233.0	35.0	131.65	33.51	**NO**	0.99	0.398	13400.00	0.60	0.55	5	4.19	427	1676	5 samples - 99th %ile RP
Total Ammonia as NH3-N	233.0	35.0	119.92	30.52	**NO**	0.99	0.464	13400.00	0.60	0.55	6	3.82	427	1676	6 samples - 99th %ile RP
Total Ammonia as NH3-N	233.0	35.0	121.04	30.81	**NO**	0.99	0.215	13400.00	0.60	0.55	3	3.85	427	1676	3 samples - 95th %ile RP

Spreadsheet based on Washington Ecology calculation program found in: http://www.ecy.wa.gov/programs/eap/pwspread/tsdcalc11.xls

Appendix E: Effluent Limit Calculations for pH

WAC 173-201A-030(1)(c)(v) states that the pH shall be within the range of 7.0 to 8.5 for marine water with a human-caused variation within 0.2 units. EPA has developed and promulgated "secondary treatment" effluent limitations, which are found in 40 CFR 133.102; the technology-based limit for pH is in the range of 6.0 to 9.0. Due to the high dilution rates in the Strait of Juan de Fuca, calculations below show that pH in the receiving water body is not significantly changed by the effluent discharged (see Table E1). Therefore, EPA proposes in the draft permit that the technology-based limits for pH in the range of 6.0 to 9.0 be implemented.

Table E1: Calculation of pH of a mixture in seawater.	
Based on the CO2SYS program (Lewis and Wallace, 1998)	
http://cdiac.esd.ornl.gov/oceans/co2rprt.html	
INPUT	
1. MIXING ZONE BOUNDARY CHARACTERISTICS	
Dilution factor at mixing zone boundary	1676.000
Depth at plume trapping level (m)	13.700
2. BACKGROUND RECEIVING WATER CHARACTERISTICS	
Temperature (deg C):	9.75
pH:	**7.90**
Salinity (psu):	30.20
Total alkalinity (mmol/L)	2.12
3. EFFLUENT CHARACTERISTICS	
Temperature (deg C):	23.40
pH:	9.20
Salinity (psu)	0.00
Total alkalinity (mmol/L):	3.00
	calculate
4. CLICK THE 'calculate" BUTTON TO UPDATE OUTPUT RESULTS >>>	
OUTPUT	

CONDITIONS AT THE MIXING ZONE BOUNDARY	
Temperature (deg C):	9.76
Salinity (psu)	30.18
Density (kg/m^3)	1023.29
Alkalinity (mmol/kg-SW):	2.08
Total Inorganic Carbon (mmol/kg-SW):	1.97
pH at Mixing Zone Boundary:	**7.90**

Appendix F: Essential Fish Habitat Assessment

Pursuant to the requirements for Essential Fish Habitat (EFH) assessments, this appendix contains the following information:

- Listing of EFH Species in the Facility Area
- Description of the Facility and Discharge Location
- EPA's Evaluation of Potential Effects to EFH

A. Listing of EFH Species in the Facility Area

On June 12, 2006, NOAA responded to an inquiry from EPA regarding endangered or threatened species in the area of Neah Bay. NOAA informed EPA by email that the only National Marine Fisheries Service regulated listed species under the Endangered Species Act are the following marine mammals:

1. The Southern Resident Killer Whale (SRKW) which is endangered;
2. The Humpback Whale which is endangered (Megaptera Novaeangliae); and,
3. The Steller Sea Lion which is threatened.

In addition, NOAA also informed EPA that a critical habitat has been proposed for the Southern Resident Killer Whale.

B. Description of the Facility and Discharge Location

The activities and sources of wastewater at the Makah Waste Water Treatment Plant are described in detail in Part II and Appendix A of this fact sheet. The location of the outfall is described in Part III ("Receiving Water").

C. EPA's Evaluation of Potential Effects to EFH

Water quality is an important component of aquatic life habitat. NPDES permits are developed to protect water quality in accordance with state water quality standards. The standards protect the beneficial uses of the waterbody, including all life stages of aquatic life. The development of permit limits for an NPDES discharger includes the basic elements of ecological risk analysis. The underlying technical process leading to NPDES permit requirements incorporates the following elements of risk analysis:

Effluent Characterization

Characterization of effluent from the Makah Waste Water Treatment Plant was accomplished using a variety of sources, including Permit application monitoring, and statistical evaluation of effluent variability in Reasonable Potential analyses.

Identification of Pollutants of Concern and Threshold Concentrations

The pollutants of concern include pollutants with aquatic life criteria in the Washington State Water Quality Standards. Threshold concentrations are equal to the numeric water quality

criteria for the protection of aquatic life. No other pollutants of concern were identified by NMFS.

Exposure and Wasteload Allocation

Analysis of the transport of pollutants near the discharge point with respect to the following:

- Mixing zone policies in the Washington State Water Quality Standards
- Dilution modeling and analysis
- Exposure considerations (e.g., prevention of lethality to passing organisms)
- Consideration of multiple sources and background concentrations

Statistical Evaluation for Permit Limit Development

Calculation of permit limits using statistical procedures addressing the following:

- Effluent variability and non-continuous sampling
- Fate/transport variability
- Duration and frequency thresholds identified in the water quality criteria

Protection of Aquatic Life in NPDES Permitting

EPA's approach to aquatic life protection is outlined in detail in the *Technical Support Document for Water Quality-based Toxics Control* (EPA/505/2-90-001, March 1991). EPA and states evaluate toxicological information from a wide range of species and life stages in establishing water quality criteria for the protection of aquatic life.

The NPDES program evaluates a wide range of chemical constituents (as well as whole effluent toxicity testing results) to identify pollutants of concern with respect to the criteria values. When a facility discharges a pollutant at a level that has a "reasonable potential" to exceed, or to contribute to an exceedance of, the water quality criteria, permit limits are established to prevent exceedances of the criteria in the receiving water (outside any authorized mixing zone).

Effects Determination

Since the proposed permit has been developed to protect aquatic life species in the Strait of Juan de Fuca in accordance with the Washington State Water Quality Standards, EPA has determined that issuance of this permit is not likely to adversely affect any EFH in the vicinity of the discharge.